Abstract

Feature extraction is a stage that has an important role in a recognition system, especially in the tropical forest ecosystem illegal logging detection system prototype. Where the prototype using acoustic pattern recognition, the prototype will be recognizing the sound patterns that exist in the environment and classify them. In acoustic pattern recognition, one of the most commonly used methods now is MFCC (Mel-Frequency Cepstral Coefficient) where the features in a sound pattern are converted into the mel frequency coefficients that will be processed by the artificial neuron network , MFCC has a weakness where MFCC is susceptible to disturbance noise so it can affect accuracy in processing voice / sound features and affect the stages of learning and classification. To solve this problem I added a sinusoidal lifter at the end of the MFCC calculation to help with the MFCC problem. From the experiments conducted on case detection of chainsaw sound detection on the prototype of illegal logging system in the tropical forest ecosystem. The use of lifter gives the higher capability of learning on artificial neuron network compared to MFCC without lifter where MFCC without lifter requires more than 20000 iterations to be able to minimize error rate to 0.005 while MFCC with lifter takes only 16 iterations, MFCC With lifter is also shown to produce higher accuracy than MFCC without lifter of 20 %.

Keywords: Acoustic Pattern Recognition, Mel-Frequency Cepstral Coefficients, Lifter, Artificial Neuron Network.